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Ames Forestry Club

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Foreword

With the rapid growth and development of our country arises a greater need for dynamic professionals in the fields of forestry and outdoor recreation. As a direct result of the nation's growth, professionals today face old as well as new problems and work with newer technologies. The 1975 AMES FORESTER staff direct their efforts toward a realization of a few of the perplexing and often frustrating problems faced by professionals and students today.

Acknowledgements

The 1975 AMES FORESTER staff thanks everyone who made this issue possible. Creating a magazine such as the AMES FORESTER requires a considerable amount of time and effort from those involved. We extend a special thanks to Mr. Robert Schwartz and the staff of the Iowa State University Press whose advice and patience were invaluable. We also appreciate the help of our advisors Dr. Fred Hopkins and Dr. Dean Prestemon. We are indebted to our patrons and advertisers for their financial support, and to the faculty, students and other individuals who helped create the 1975 AMES FORESTER.

The Cover

The cover photo was taken by April McDonald at Holst State Forest.

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The pictures submitted by faculty and students are appreciated.
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The direct influence of H. H. Webster, the fourth Head of the Forestry Department of Iowa State University since 1904, comes to an end this May but the impact of his personality will be felt for years and students yet to come.

Just as earlier Department Heads had each in turn guided the Department through the development days of the conservation era; stabilized and solidified the place of Iowa State graduates in industrial forestry in the post-World War II years; developed the research facilities and graduate programs of the early sixties; so did Hank Webster provide unique guidance. The direction given in these last eight years has been focused on the complex maze of legislative and budgetary affairs, on the tough apres-Earth Day in-fighting of a newly-aware, resource-concerned society and on the growing necessity to give a professional hand-up to minority races and women. Dr. Webster has been acutely sensitive to these winds of change and his natural inclination toward the direction of these winds coupled with an innate desire to engage in the new activism has drawn unexpected attention to his concepts of forestry and education.

If the recorders of trends in conservation education search to the roots of the concept of integrated natural resource management they will find that Hank Webster's energies, convictions and organizational skills have prevailed as have those of few others in capturing the talents and visions of individual educators to mould a new curriculum and a new and more aware forest resource manager.

To Henry H. Webster, a professional forester who has added to his inborn and emerging skills the experiences of a decade of federal forestry and a decade of forestry school administration, we dedicate this 62nd AMES FORESTER and extend our best wishes for as many innings of success as he may wish to pursue in the arena of Michigan forestry. May the rain-outs be fewer than the games played and won.
Outdoor Recreation Research Needs in Alaska

by DEAN R. YOESTING

A cooperative aid agreement was arranged during the summer, 1974, between the Department of Forestry at Iowa State University and the Pacific Forest and Range Experiment Station of the U.S. Forest Service to prepare a state-of-the-arts report on outdoor recreation in Alaska. In addition, a recreation research project is to be conducted to provide information for recreation planners and managers in making resource decisions. As project leader, it was necessary for me to spend considerable time in Alaska, familiarizing myself with the existing programs in resources so that I could prepare the state-of-the-arts report and make recommendations regarding a recreation program for the U.S. Forest Service in Alaska.

Stationed at the Forestry Sciences Laboratory at Juneau for three and one-half months, I visited with and interviewed the recreation and lands managers and planners on the two national forests, Tongass and Chugach. I visited most of the Forest Service campgrounds and hiked on a number of Forest Service trails to talk with campers and hikers about their recreation experiences. I also worked closely with the Division of Information and Education of the Alaska Regional Office for the Forest Service, in evaluating the interpretative programs at the visitor information center, and with the naturalists working on the Alaska Marine Highway System.

The Forest Service is only one of the natural resource agencies in Alaska. To obtain a broader understanding of outdoor recreation, I interviewed recreation planners in the National Park Service, Bureau of Sport Fisheries and Wildlife, Bureau of Land Management, and the Joint Federal-State Land Use Planning Commission. At the state level, I interviewed representatives of the Governor's office, legislators, University of Alaska research staff, Division of Tourism, Department of Economic Development, Division of Parks and Recreation, and the Marine Highway System. At the local level, I interviewed city and borough planners, private recreation developers, and representatives of chambers of commerce. The information these people provided was invaluable in familiarizing myself with the existing outdoor recreation programs throughout the State of Alaska. It is from these interviews and travels that I share with you what I see as some of the critical recreation research needs in Alaska.

Need for Recreation Research in Planning

Outdoor recreation and tourism have a significant impact on the way of life and economy of Alaska. Tourism is the third most important industry in the state, preceded only by the timber and commercial fishing industries. From 1964 through 1974, the number of tourists who visited our 49th state increased by an average 15 percent annually, and this
rate of increase is anticipated to continue.

There are some unique features of tourism and outdoor recreation participation in Alaska that most places in the lower continental 48 states do not have. In southeastern Alaska, these unique features include: heavy amounts of precipitation, up to 180 inches each year; no road access to the towns of the area and, therefore, the heavy use of cruiseships and ocean-going ferries in transporting large numbers of people into the area; and the heavy use of air travel to reach local and remote locations. The interior of the state also requires extensive air travel or many long, dusty days of travel over the Alcan Highway to reach the state.

Despite the large increases in tourism and the number of people moving to Alaska, very little outdoor recreation research has been conducted in the state. Until recently, federal and state agencies having the responsibility for developing and managing the outdoor recreation resources have thought that the vast land resource could provide for all the recreation experiences desired, and little research has been necessary. But, outdoor recreation currently is assuming an important role in the quality-of-life experience of the users. A steady, although relatively small, stream of resource legislation has been enacted in different states to provide programs in outdoor recreation. Research related to outdoor recreation is, therefore, taking its place with other forest- and wildlife-related research as an integral part of an overall natural resource research program.

There is real need for an accurate research base for recreation planning. Considerable research throughout the lower continental 48 states exists concerning the recreation resources, the natural conditions that govern their change, and the management policies that contribute to their conservation and preservation. In comparison, little research has been conducted that provides a better understanding of the social and psychological aspects of the recreation experience.

If the resource managers are to manage the lands for maximum user satisfaction, they must know who their clients are and have some understanding of what recreationists like and dislike. The resource manager traditionally has focused upon protecting the physical resource and operated under the assumption that the visitors will use and like whatever is provided—supply creates its own demand. But this assumption is being questioned as current enthusiasm regarding environmental protection and more public involvement in environmental decision making is put forth. Recreation planners and managers are becoming more aware of and concerned about the people for whom they manage.

The recreation resource planners and managers in Alaska are no exception. They have little information available to provide a data base for managing the recreation resource. To date, practically no recreation research has been conducted in the state, and what has been obtained lacks good research data-collection techniques and is out-of-date. A strong need exists, therefore, to determine who the recreationists are, what recreation experiences are desired, and why the recreationists desire and participate in some outdoor recreation activities, but not in others.

Because of the lack of a good recreation research data base in Alaska, the resource managers operate on a trial-and-error basis. They continually say that Alaska is unique and that research done elsewhere is not applicable. But research is not available to determine whether research conducted in other parts of the United States is applicable to Alaska. A good recreation research program must be instituted to provide the appropriate data from which planners can develop a recreation program suited to the area, yet provide the quality of recreation experience desired by the residents and the tourists.

**Alaska Outdoor Recreation Research Needs**

My major focus on recreation research needs is behavioral and does not cover research that focuses on the resources themselves. There are a number of major research areas that I will discuss, which include 1) the interrelationship among natural resources, 2) the recreation user in general, 3) resident research needs, and 4) nonresident research needs.

Outdoor recreation does not occur in a vacuum, and the management of all natural and human resources must be considered in developing a recreation research program. In my discussions with the resource managers in Alaska, they raised a number of questions regarding the balance between resources being managed for one use over another use. What is the role of recreation in relation to timber, water, and (or) wildlife? How can a balanced program be established? How can you equate the various costs and benefits of these various resources, including social as well as economic costs and benefits? For example, an area may be highly regarded as a potential recreation area, but that same area also may be a good commercial timber site. Which should take precedence? What impact would the timber harvest have on the recreation experience? On the wildlife habitat? On the watershed?

In Alaska, the nonconsumptive uses of wildlife, marine mammals, and birds is extremely important in the recreation experience. Many people move to the frontier or travel there as a tourist to view the large numbers of wildlife. To date there has been little effort to manage these wildlife for viewing because large numbers have existed. But in recent years, there has been a decline in the numbers of most species, and they are being pushed further and further into the back country. Managers need to know if people who have seen wildlife have been more satisfied with their trip than those who have not. Did they anticipate that they would see wildlife before
coming to Alaska? Were their expectations achieved?

The timber industry is a major component of the economy of Alaska; yet, the relationship between timber and recreation is not well understood. In what way do forest management practices influence the recreation experience? Do the recreationists understand the need for clearcutting versus selective cutting or clearcuts versus muskeg areas? What impact does heavy tree infestation or smoke from the sawmills have on the recreation experience? To what extent do residents and tourists understand the consequences of various resource management alternatives? It is not difficult to gather information regarding ideal situations of resource management if tradeoffs are not considered. When alternatives are weighed for advantages and disadvantages and also compared among themselves, however, we arrive at more realistic opinions.

Another major issue raised by resource managers, residents, and tourists alike is related to the public reaction to “growth” within the state. There is not good information available to indicate the reactions of people toward future development of natural resources in Alaska. There is much speculation, but little hard evidence available. This also was evident in the recent gubernatorial elections. The more conservation-oriented candidate won the election, but only by a slim margin.

When the research need for the recreation user is considered, the most critical needs expressed by the planners and managers are to develop good baseline data from which the planning can be generated. There has been only one major study completed, and the results of it are questionable, but are used because there are no better data available. The Alaska Division of Tourism has traveler estimates, and the federal agencies have collected user estimates periodically, but no in-depth information has been gathered from residents or tourists to determine recreation participation patterns. Once baseline data is available, then a comprehensive recreation research program can be pursued.

The Forest Service in Alaska provides one experience for recreation users that does not exist in other forests. They maintain more than 150 cabins, located mostly in remote areas, that can be rented by the general public. Access to these cabins is mainly by floatplane or boat and are used mostly as retreats for hunting and (or) fishing. The cabins provide unique experiences to residents and nonresidents alike. Minimum amounts of information are available on which cabins receive what amounts of use, the lengths of stay, and the size of the parties using each facility. But what motivates the use, who are the users, what kinds of experiences are sought, should more than one cabin be placed in a given area, what detracts from the experience, what management practices have an influence on the experience? What is the best means of making people aware of the facilities? Answers to these and many other questions will help to improve management practices of an important part of the Forest Service management programs.

A viable recreation research program must include research concerning both the resident population and the tourists. The residents seem to have needs and desires in their recreation experience different from those of tourists who come into the state for short periods. What are the attitudes of the residents toward outside recreationists? To what extent does focusing the recreation development of a community on tourist needs affect the life style of the residents? To what extent do residents perceive the tourists as contributing to or detracting from the residents’ recreation experiences? Certain kinds of recreation experiences may be more appropriately developed for the tourists and not for the residents. What are the residents’ attitudes toward the social desirability of specific recreation activities? And what are their priorities for land use? Information of this kind could provide considerably more information for resource managers than they have had.

The State of Alaska Outdoor Recreation Plan totally excluded the native population of Alaska. This group represents about 65,000 Eskimos, Aleuts, and Indians who should be considered in recreation planning. Residents in native villages and natives residing in other communities should be interviewed to determine recreation preferences and participation patterns. It is not now known whether existing facilities and activities meet the needs of these people.

The tourists who visit Alaska present different kinds of problems form those of the resident population. When studying the tourists and their impact upon local areas, it will be necessary to observe their entire recreation experience. In southeastern Alaska, for example, there is limited means of entry into the area, with a large number entering and leaving by cruiseship and ferry. Because of this, there is little of the recreation experience “on the ground.” These tourists view the landscape, fauna, flora, wildlife, marine life, and waterfowl from varying distances from the inside passage. Their recreation experience is tied to the esthetics and interpretation of the geology, the history and culture, and various management activities.

Much of the recreation experiences in the interior of Alaska present other kinds of problems. The Kenai Peninsula, which is within 60 miles of Anchorage, is a major playground for the residents of Anchorage. There is heavy use of the recreation facilities, even overuse, that requires management skills equal to those of our national forest and wildlife refuges in the lower continental 48 states.

Overuse also is evident at Mt. McKinley National Park. The numbers of visitors have grown so rapidly that the 60 miles of roads essentially have been closed to traffic during the peak summer season, and the National Park Service provides free bus travel on the road. This practice has proved successful in that wildlife are returning closer to the road, and the
chances of viewing brown bear, caribou, dall sheep, and moose are very high.

One of the critical problems that I saw was the heavy overuse of many recreation areas. Because of the limited highway system, recreation areas that can be reached by road are very heavily used and do not fit our stereotype of a wilderness setting.

There seems, then, to be some distinct differences between the needs and desires of the resident outdoor recreation participant and the nonresident or tourist needs and desires. These differences must be determined to prove whether this hypothesis is true and to what extent it is true. But neither can we assume that all tourists are alike. What are the differences between those who arrive by plane versus those who arrive by cruiseship of ferry? How do these people differ from those who drive? The number of questions that can be raised seems endless, and there are few answers at this point.

Conclusions

In the past, recreation managers mainly have managed the facilities for the resources' sake, but change is needed in this philosophy. There is a strong need to manage for the recreation experiences of the participant. This would permit a more unified recreation program and place the focus on a broader plane than on a particular facility. The facility management approach is much too limiting and does not permit a coordinated program over a larger area. With limited maintenance and development monies, a regional approach would permit better utilization of resources.

Another consideration is the relationship between the resource managers and the recreation researchers. The managers need to understand the needs and desires of the recreation users, their values and attitudes, and their motivation, all of which will permit a better utilization of the recreation resources. The researchers can begin to provide some of this knowledge, but they must work closely with the managers to understand the problems facing the managers and to provide needed answers. These problems are not specific to agencies or disciplines; therefore, an interdisciplinary, multi-agency program must be developed to provide a unified recreation program.
Lumber Yields—Constraints and Opportunities

by GILBERT L. COMSTOCK

The wood products industry for many years had the luxury of having a low cost, seemingly endless supply of raw material. Because of this there was little incentive to make better use of the forest through higher yields or use of low grade logs. Emphasis was aimed at maximizing productivity and minimizing production costs without much regard to how well the raw material was utilized.

This luxury no longer exists. Within the last decade the cost of the raw material entering a sawmill or plywood plant has become the major part of the cost of the finished product. Raw material costs account for well over 50% of the cost of most wood products. This, coupled with an ever shrinking land area for timber production and the threat of a diminishing supply of raw material, is bringing about a new era in the forest products industries.

Maximizing profits is no longer synonymous with maximizing productivity and minimizing production costs. It is more nearly synonymous with maximizing yield or more particularly maximizing value recovery from the raw material.

At present lumber and plywood are the major structural products produced from wood and probably represent the highest and best current use of wood in large quantities. Uses are primarily in residential construction and secondarily in industrial construction and for other industrial uses. Lumber and plywood manufacturing consume the majority of the high value raw material contained in the merchantable bole of harvested timber. However, the conversion to finished product is not very efficient in either process. Some improvements have been made in processing to increase yields, but the improvements made to date are small compared to the potential gains.

As presently practiced, particleboard and the pulp chip market reap the benefits of inefficiencies in the manufacture of lumber and plywood. These inefficiencies result in large amounts of residue which end up as pulp chips or wood particles at a relatively low value.

Although the prices of most forest products fluctuate wildly with supply and demand shifts, a fairly typical price structure is about $100/bdt* for lumber and plywood, $25/bdt for pulp chips, and $10/bdt for other wood residuals. It’s fairly obvious from this price structure that the driving economic incentive is to maximize the yield of the primary products. If yields could be significantly increased, the value recovered from our forest resource would be increased and the price of chips would be forced up by a reduction in the supply of chips as by products. This in turn would lead to greater use of all forest residuals and provide some of the economic impetus needed for complete tree utilization.

There are some real opportunities for increasing lumber yields, but there are also some constraints that limit the yields attainable with existing lumber manufacturing technology. Understanding the opportunities and constraints is important to anyone involved either in the growing or processing of timber, since there are opportunities in both ends to make significant gains in the yields of valuable forest products.

Limitations to lumber yields from our forests fall into two broad categories, raw material charac-

* bdt—1 dry ton

Gilbert L. Comstock began his professional training at Iowa State University where he received a B.S. in Forestry in the Wood Utilization option in 1958. He served as editor of the Ames Forester that year. In 1962 he received an M.S. in Wood Science and Technology from North Carolina State University. This was followed by 6 years with the U.S. Forest Products Laboratory in Madison, Wisconsin where most of his work was research on wood moisture relations and permeability. During that time he studied for and received a Ph.D. from the New York State University College of Forestry in Wood Products Engineering. In 1968 Dr. Comstock left the Laboratory to join Weyerhaeuser R & D where he has done extensive research and implementation work on veneer drying and lumber drying. Since 1972 he has been the manager of lumber processing R & D activities for Weyerhaeuser.
teristics and lumber processing capabilities. These will be discussed in turn.

RAW MATERIAL CHARACTERISTICS

Lumber manufacturing has some inherent inefficiencies because we are producing rectangular shapes directly from more or less cylindrical segments. In short, we are trying to fit the square peg in a round hole. Add to this the constraints on sizes produced and the variable shape of logs, and you have some severe limitations to lumber yields.

The predominant raw material characteristics which influence lumber yields are log diameter, taper, and sweep. Eccentricity can also be a factor, but it is less important.

Log Diameter

Diameter influences both the yield of lumber products attainable from our forest resource and the flexibility in product sizes which can be produced. Diameter is particularly important in small logs which are a predominant raw material now in the south and are becoming a major factor in the west as the last commercial old-growth forests are harvested.

In general, the smaller the diameter of log processed, the lower the potential yield because the opportunities for fitting the desired rectangular shapes to the log are more limited. Figure 1 as an example shows how the theoretical yield of lumber varies with log diameter. The calculated theoretical yields can shift up or down if different assumptions are made on how to cut the logs, but the influence of diameter will always be similar. Potential yield will invariably be less out of small diameter logs.

This has broad implications in forestry practice and should become a part of forestry planning and decision making on what the optimum size and age are for timber harvest. I have some personal concerns that forest management and manufacturing people don’t communicate on this subject to the extent they should to extract maximum value from our forest lands.

Taper

Although we all recognize that taper is an inevitable characteristic of trees, there is little recognition of the impact that taper has on limiting the attainable yield of lumber from logs, particularly from small logs.

Assuming a fairly standard taper factor of 1” diameter per 8’ and assuming 8’ long logs, which are about the shortest logs processed, the volume of wood contained in the tapered portion (i.e., the wood out-

Figure 1: Calculated lumber recovery factors for logs of varying diameters (BF = boardfeet, CCF = 100 cubic feet)

Figure 2: Percentage of the wood included in the tapered portion of 8’ long logs of varying diameters.
side the cylinder projected by the small end diameter) represents 26% of the log volume in a 4" diameter log and 10% in a 10" diameter log. Figure 2 shows how the percentage of volume in the tapered portion of an 8' long log varies with small end diameter. Clearly in small logs taper is an important factor limiting lumber yield, since virtually all the taper in an 8' log will end up as chips or residual.

Sweep (crook)

A third characteristic which is extremely important in limiting lumber yields is the amount of sweep or crook in the logs. The amount of sweep depends on the species and probably several other factors. Casual observation on my part indicates this is probably a much more important factor in the southern pines than in most other softwood species.

The lack of straightness in logs is far more important in limiting lumber yields than is generally recognized. Like taper, the impact of sweep on yield is more pronounced on small logs. On a fairly typical 8-10" log, 1 inch of sweep will result in a reduction in yield of about 15% compared to a straight log of that size. The reduction in yield increases in direct proportion to the amount of sweep, i.e., with 2" of sweep the yield reduction would be 30% etc. A typical graph of the effect of sweep on yield is shown in Figure 3.

In summary the important raw material characteristics influencing lumber yields, particularly as we look to the forest of the future, are log diameter, taper and straightness of the logs. The larger, straighter and more cylindrical the logs, the higher the potential yields will be and the more valuable the forest will be.

LUMBER PROCESSING

From the previous discussion, it's clear that a number of raw material characteristics influence the potential yield of lumber from logs. The manufacturing process can also have a great influence on the actual yields attained. Because of the broad range of raw materials, processing equipment, and products, it's impossible to generalize on where we stand now compared to the theoretical maximum yields. Figure 4 shows a fiber balance with a fairly typical range of values for a softwood small log mill producing dry-surfaced dimension lumber. Of the actual cubic volume of logs entering a sawmill, 45-55% will end up as rough green lumber, 35-40% as chips and 5-15% of other residuals, mostly sawdust. Through drying and surfacing, another 10-15% of the original volume is lost to shrinkage, planer shavings and trim leaving roughly 30-45% of the initial log volume as finished dry product. Individual mills can be cited that fall outside that range, but most will be within it.

The lumber manufacturing process involves a series of sawing machine centers. Although the flow varies from mill to mill, a typical sequence is bucking, primary breakdown, edging, resawing and trimming. The processing step at each machine center involves making a decision about what to do with the raw material being processed through it followed by the actual sawing or execution of the decision. Losses from potential yield occur as a result of incorrect decisions as well as inability to accurately execute the decisions. There are lumber yield improvement opportunities through better decision making and better sawing.

Decision Making

Most sawmills rely on machine operators to make the decisions about how to process each piece of raw material. Since the product of a machine in the front of the sawmill becomes raw material for a downstream machine and several machine centers are typically involved in the sequence of producing lumber, it is apparent that a number of operators are involved in making decisions that influence the yield and quality of product produced. The machine center operators in a sawmill therefore can have a tremendous impact on the performance of that mill.

One way of minimizing the number of mistakes is to have well trained, highly motivated operators who understand the market requirements and capabilities of their machine center. However, even a well trained, highly motivated operator is not capable of always making the correct decisions. Obtaining

Figure 3: Typical data showing the influence of the amount of sweep on lumber yield for 6" and 10" logs 8' and 16' long.
maximum yield from small logs requires the ability to measure diameter to within 0.1 inch and adjust the cutting pattern accordingly. Clearly, no one can consistently judge log diameters that accurately.

This brings me to a key point. Correct decision making in a sawmill requires the ability to accurately measure the size and shape of the raw material being processed. This includes logs, cants, slabs, and boards. The capability to measure those pieces accurately will make it possible to fully automate most processing steps by applying minicomputers to analyze the data and make the best decisions. Some very significant strides have been made in the last few years in scanning logs for diameter and shape and in the application of minicomputers for process control on small log headrigs. Yield improvements of 10% compared to manual control are not uncommon for this one step in automation. Relatively little has been done downstream of the headrig to replace the man in the decision making process, primarily because the scanning involves different requirements and the measuring systems are not yet fully developed. Although the gains may not be quite as spectacular as that obtained by headrig control, significant contributions to improved lumber yields should be possible. Major advance in process control at edgers and trimmers should occur within the next 2 or 3 years.

Figure 4: Typical fiber balance for a softwood small log sawmill.

Sawing

The best possible decisions are not worth a whole lot if the machines in the mill don't have the capability to accurately execute the decision. The ultimate goal is to cut the wood precisely in the right place with a high degree of accuracy and a minimum amount of sawdust or other residual. Most existing sawmill machinery leaves something to be desired in one or several aspects related to carrying out the optimum decisions.

The essential elements of each sawmill machine center are positioning the raw material onto the transport, setting the saws accurately relative to the raw material, transporting the raw material accurately past the saw(s) in a stright line, and sawing with a minimum kerf and maximum accuracy. To achieve maximum benefits of improved decision making requires the ability to perform each of these four elements. Of course, some significant gains can be made independent of the decision making aspect by more accurate sawing with less wood waste.

Major advances have been made in some areas in recent years. For example, the precision ball screw setworks has improved precision to within a few thousands of an inch and the high strain bandmill has resulted in markedly better sawing accuracy and reduced kerf as has the use of thin kerf carbide tipped round saws in many areas. Kerfs of 1/8 inch are not uncommon for 6" and 8" deep cuts. However, some major room for improvement still exists in improving sawing accuracy.

Saw preparation is an area that has benefited relatively little by the application of science and engineering to the lumber business. Saw filers are using procedures that haven't changed much for many years, and the success of a lumber processing operation is contingent on the skill of the saw filer. With the tools available to them, saw filers do a remarkable job of keeping the sawmills operating. However, there are real opportunities to improve the art of filing by the application of science and engineering principles and the use of more accurate measuring equipment to help the filer do his job even better. This will require a concentrated effort on the part of technical people working in cooperation with the filers to push back the frontiers of knowledge and bring saw preparation more into the realm of a quantitative science.

Figure 5 shows roughly the amount of waste typical of most current softwood sawmills and the opportunity for improvement. To produce a finished dry thickness of 1.500 inches requires about 1.875 inches thick of raw material including allowance for kerf, sawing variation, roughness, planing, and shrinkage. This represents about 25% waste. With the development and application of new technology to the sawing of wood, it should be possible to reduce this waste factor to only 15% and produce a corresponding 10% increase in lumber yields.
**Drying and Surfacing**

Although the direct impact on yield is less than in the sawmill itself, drying and surfacing can be very significant factors in overall yield and grade recovery. We are just getting into the plantation grown trees in this country, but there is some evidence from here and abroad that this type of timber gives much greater problems in drying, largely due to greater tendency to warp. Although this can be controlled to some extent, there appears to be significant opportunity for further improvement. These improvements could come either through research and development of improved drying techniques or research on forest quality aimed at producing trees with little or no reaction wood and a minimum of juvenile wood and spiral grain.

Moisture content is also a significant factor in drying. The end use normally requires a certain maximum moisture content, for example, 19% for dry dimension lumber. To meet this requirement there is a tendency to over-dry much of the lumber, which causes excessive shrinkage and warp and loss in both grade and yield. This can be controlled to a considerable extent by better kiln design, moisture content measuring instruments for in-kiln measurement and recycling of wets through the kiln.

Surfacing is probably more a factor in grade than in yield, but it can affect yield. As technology develops for precise size control in the sawmills, surfacing will become more a matter of touching up the lumber to achieve the final size. At present, surfacing in part involves hogging off excessive quantities of wood from thick pieces to achieve the final size. Likewise drying suffers from thick and thin pieces which cause drying problems and contribute to moisture content variations in the final product. Better size control in the sawmill will definitely have a positive impact on both drying and surfacing.

**Glued Products**

From the foregoing discussion, it should be clear that there are significant opportunities to increase lumber yields well beyond where we are now, but it is also clear that there are some yield limitations and in particular, there will be product size limitations from small logs without the use of some gluing processes. Yields of prime sizes can be increased markedly by the use of gluing technology already developed or now emerging. Development of process control for gluing and proof testing technology should result in much broader use of gluing on structural lumber products.

**SUMMARY**

The economic incentive is very great for better use of our forest resources through improvements in yield. In lumber manufacturing there are some limitations to yield resulting from raw material characteristics and processing capabilities. Yields decrease with decreasing log diameter and with increasing amounts of sweep and taper. Major improvements in yield can be made through better decision making in the sawmill and better sawing technology. Improvements can also be made in both yield and grade through better drying and surfacing.

**Figure 5:** Waste generated due to sawing wood today and where we might be with improvements in technology of sawing.
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Save the Ledges!
by NEIL HAMILTON

Located only 12 miles southwest of Ames, lies one of the most beautiful natural areas of the state—The Ledges State Park.

Noted for its native hardwood forests, scenic views and unique limestone outcroppings, the Ledges has been one of the most popular of Iowa's state parks, and currently draws over 500,000 visitor days of use per year. From its origin, the Ledges has served as a major source of recreation and inspiration for residents of the state and ISU students. The park has created a multitude of memories, but in the last few years the most scenic and unique portion of the Ledges has been put in jeopardy. The controversy revolves around the Army Corps of Engineer's Saylorville Dam project for flood control on the Des Moines River; and the effects of the resulting reservoir on the aesthetics and biological communities of the lower Ledges.

Major conservation groups involved in the controversy, the Sierra Club, the Citizens United to Save the Ledges, and Iowa State Public Interest Research Group (ISPIRG), argue that the occasional flooding of the lower Ledges will result in an alternation of the water table, and the slow death of the trees and vegetation. The frequency and duration of the inundation will determine the amount of destruction. Many argue that it will only be a matter of time before the lower Ledges turns into an unsightly mud flat riddled with dead trees and trash.

The Corps does not seriously dispute the validity of these objections, but rather claims that the project is merited by the overall benefits. In a time when unique natural areas are quickly disappearing in the wake of urban expansion, the value of these benefits is questionable. Social and psychological needs as well as aesthetic, recreational and wildlife values cannot adequately be measured in monetary terms. Such intangible considerations are therefore minimized or absent from benefit/cost ratios. But not all benefits and costs are of an economic nature.

Flooding will drastically change the natural aspects and physical layout of the park. Already plans are on the board to redesign the park and acquire additional forested acreage to the east. But merely expanding boundaries will not solve the problem. Alternative plans are needed to save the lower Ledges.

Conservation groups have rallied public support for other reasonable options. Because the dam construction is nearly completed, the cessation of the entire project is not a viable solution. Two alternatives to alleviate probable damage are being discussed among citizens of central Iowa. First is the construction of a barrier dike and pumping station in the lower Ledges, to prevent the back water from reaching the park. The pumping station is necessary to pump the water of Pease Creek to the reservoir. This solution would cost approximately $7 million (total costs for the project are about $70 million). This alternative has its own scenic drawbacks, but is receiving the greatest amount of attention presently.

A second alternative would be a recomputation and rescheduling of the release rates for the reservoir. By accelerating the release rate during flooding, the water level could be prevented from reaching the level of the Ledges. This plan does create questions concerning the flood control value of the project, but seems to be a more reasonable answer by many citizens.

This controversy has created considerable dialogue and litigation, but no actual agreement has been reached. Whether a decision will be coming shortly is not certain, but the Corps has again found itself on the wrong side of the battle. This decision will be of extreme importance to the people of Ames and Iowa. We can only hope that the agreement reached respects the unique beauty and value of the Ledges.

DAVID W. COUNTRYMAN
Associate Professor of Forestry

Dr. Countryman joined the staff at ISU on January 29, 1975 and is teaching Forest and Outdoor Recreation Resource Measurements and co-teaching Management of Forest and Related Outdoor Recreation Resources: Integrated Case Studies. Dr. Countryman is assistant director of the regional program entitled “Guidelines for More Effective Regional Development of Forest and Recreation Resources in the North Central United States.”

Dr. Countryman received his B.S. in 1966 and his M.S. in 1968, both in forest management at ISU. In 1973 he received his Ph.D. at the University of Michigan in forest management and planning. While at Iowa State, he was a research assistant, forestry extension assistant and Acting Extension Forester. Dr. Countryman has worked as a Forester with the U.S. Forest Service on the Poplar Bluff Ranger District, Clark N.F., Missouri; as a project leader on Project SNAFOR with the U.S. Forest Service in Ann Arbor, Michigan; as Forester in the Division of Program and Policy Analysis in the Washington, D.C. office of the U.S. Forest Service; and as secretary-treasurer and vice-president of the National Society of American Foresters’ Systems Analysis Working Group.

His past research included a study of Site Index of Iowa Upland Oak Stands, development of a computerized gaming-simulation for use in teaching forest resource management, work on Forest Service land-use planning and budgeting processes, and development of a model for Forest Service Management.

If Dr. Countryman has any spare time, he enjoys hunting, fishing and canoeing.
Early in 1974, Dr. Fred Hopkins received an assignment from the International Agricultural Program of Iowa State University to spend 1½ years in Peru, South America, where he is working with forest products utilization.

His first stop was Washington, D.C. where he spent over four months in intensive language training for Spanish. After a brief visit to Ames in February, he and Mrs. Hopkins traveled to Lima, Peru where they will live until the fall of 1976.

Dr. Hopkins is working both in Lima and in the antiplano region, an area of high plains within the intermountain region of Peru. Dr. Hopkins is studying the vegetation types and helping Peruvians toward a more efficient utilization of their forest resources. He is also doing some research and aiding Peruvians in their research.

The Peruvian government and the United States are working together through the Agency for International Development (AID). Dr. Hopkins was chosen because of his capabilities in the area of forest resource utilization.

Forestry Association of Graduate Students

Front row: H. Vurdu, J. Gulliford.

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DONALD ACKERMANN  
Forest Management  
Wildlife Biology  
Don and his wife, Jorja Sue, are looking forward to his graduation this spring. After graduation he hopes to work for the Forest Service. Don, who is from Monticello, Iowa, attended summer camp in North Carolina in 1973. The following summer he did timber marking in the Bighorn National Forest in Wyoming. Hunting, fishing, and camping are some of Don’s favorite pastimes.

DARRELL AUSBORN  
Forest Management—Business  
Darrell, a native of Lake City, Iowa, graduated Fall 1974. He attended summer camp in Wanomega, New York. Following summer camp Darrell was employed by Osmose Wood Preserving Co. in upstate New York, where his duties included inspection and treatment of utility poles. He has been a member of Forec Club and Veteran’s Club and enjoys motorcycling, fishing, and other outdoor activities in his spare time. Following graduation Darrell planned to find employment in the southern industries.

GREG BEHM  
Outdoor Recreation—Wildlife Biology  
Scoping wildlife, fishing, archery, photography, and travel are some of the hobbies of this Elgin, Illinois native. After graduation this spring Greg hopes to find a position in park management or some related area. Greg, who is a member of the National Wildlife Society and a past member of the I.S.U. Fisheries and Wildlife Biology Club, has spent the past two summers at Lake Defiance State Park, McHenry, Illinois, as a summer maintenance crew supervisor.
GARY BEYER
Forest Management—Range Management
Gary is from Grinnell, Iowa, and will be graduating this spring. He attended summer camp in Calumet, Quebec in 1972. Gary spent the summer of '73 in Solon Springs, Wisconsin supervising a highschool T.S.I. crew. The following summer he worked in Cass Lake, Minnesota as a Forest Service team leader in the Youth Conservation Corps program. Gary, who has been a member of social committee for Forec Club, co-chairman of the '74 Wild Game Banquet, and member of Xi Sigma Pi, enjoys running, hunting, canoeing, and basketball. Gary's post graduation plans include marriage and employment with either the Forest Service or private industry. He would like to gain experience in the western United States.

MARSHALL BOLTE
Forest Management—Outdoor Recreation
Marshall, a native of Glenwood, Iowa, is another veteran of the 1972 summer camp in Calumet, Quebec. The past two summers Marshall worked for the Mid-West Walnut Co. in Council Bluffs, Iowa. His duties included tallying log volumes and grading and separating wood. Marshall's plans after spring graduation are to either obtain a professional position in a sawmill or pursue an occupation in outdoor recreation. Marshall is an active member of Delta Tau Delta fraternity where he has been a House officer, a House committee chairman, and a member of the administrative committee. When Marshall isn't studying, he fills his spare time with jogging, swimming, hunting, fishing, farming, and repairing stereo equipment.

TODD A. BUECHLER
Forest Products—Marketing; Industrial Administration
Todd's summer work experience includes cruising and plantation maintenance in Yellow River State Forest in Waukon, Iowa and work in marketing research and sales for Simpson Timber Co. in Portland, Oregon. Todd, who hails from Des Moines, Iowa, is an active member of Phi Kappa Psi fraternity where he has been a Pledge Educator, a P.R. chairman, and Veisha Events Committee Coordinator. Tennis, golf, and paddleball are some of his favorite pastimes. Todd, who attended the 1972 summer camp in Calumet, Quebec, plans to work in sales management or marketing research after graduation this spring. He hopes to continue his education after several years of work experience.
GARY BUSCHE  
Forest Management—Outdoor Recreation  
Outdoor sports, hunting, and camping as a family are some of Gary's favorite pastimes. Gary's family includes his wife, Anita, and their daughter, Heidi Jo, born March 12, 1974. Gary, who is from Carroll, Iowa, attended summer camp in Wanakena, New York in 1970. The past four summers he was employed in timber marking and fire fighting in Black Hills National Forest in South Dakota. After graduation this spring, Gary wants to find a job with the Forest Service in the western states.

DALE BUTLER  
Outdoor Recreation—Ecology  
Dale, a Fall 1974 graduate, enjoys tennis, snow skiing, and all outdoor activities. While at Iowa State, Dale participated in intramurals and residence hall government. Dale spent the summers of '70-'73 working as a climber on a tree crew for Wright Tree Service in his hometown of Mason City, Iowa. "Nothing definite" describes Dale's plans after graduation.

RANDALL COOK  
Forest Management—Business Management  
Randy graduated in the fall of 1974. He and his wife, Danita and daughter Dina-Marie, are living in Nevada. Randy, a past member of Forec Club, attended summer camp in North Carolina in 1973, and has worked for the Firestone Tire and Rubber Co., the Polk County Conservation Board, and the IAAP in Burlington where he did TSI in white oak and black oak forest areas. Randy is currently working for the Story County Conservation Board. Hunting, fishing, playing guitar, and reading are some of Randy's hobbies.
JON GEHRING
Forest Management—Forest Products
Jon, a native of Marion, Iowa, has been an active member of Forec Club serving as sophomore class representative in '72-'73, vice president in '73-'74, and president during '74-'75, along with co-chairing Fall Forester’s Day and Christmas tree sales in '73, and Veisha activities in '74. Jon is also serving as an Assistant Forester in Xi Sigma Pi, a member of the Forest Products Research Society, a student member of the Undergraduate Academic and Awards Committee, a member of the Iowa Highschool Athletic Association, and an official and supervisor for intramurals. In his spare time Jon enjoys all sports, camping, and “just plain relaxing.” He attended summer camp in Calumet, Quebec in 1972 and was employed by Weyerhaeuser Co. the past two summers. The summer of '73 was spent in Mountain Pine, Arkansas, working in the forestry department cruising timber. Dierks, Arkansas was Jon's home during the summer of '74 while he was employed as a summer intern in the timberlands department. Jon and his wife, Buff, are looking forward to his spring graduation. Jon is “entertaining the idea of graduate school in Forest Biology.” If he decides against graduate school, he plans to find a forest management position.

DAVE HARKEMA
Forest Management—Fire Science
Hunting, motorcycle riding, backpacking, and fishing are some of Dave's hobbies. He has been an active member of Forec Club serving as historian, supplying game for the Wild Game Banquet, and serving as Conclave captain, as well as belonging to Xi Sigma Pi. Dave, who also attended the 1972 summer camp in Calumet, Quebec, has been employed by the Forest Service in San Juan National Forest in Durango, Colorado for the past two summers. Among other things his job included regeneration surveys, control burning, and fire experience. This summer Dave plans to work on an interregional fire fighting outfit in Colorado Springs, Colorado. He plans to graduate in fall of 1975. Further education or a government job are in his post graduation plans.

RUSS HATZ
Forest Management—Resource Education
After graduation this spring, Russ, who is from Des Moines, Iowa, plans to work in the Peace Corps, hopefully in western Africa. Russ was employed by the Forest Service in Union, Oregon, during the two summers following 1972 summer camp in Calumet, Canada. He spent the summer of '73 working in the Eagle Cap Wilderness on the trail crew and kept occupied on the T.S.I. crew during the summer of '74. Russ has been active in Residence Hall Week for the past three years, serving as events chairman and interim chairman. Russ also serves as Sec.-Fiscal agent in Xi Sigma Pi and vice-president of Forec Club. He participated in marching band, and enjoys backpacking, tennis, and music in his spare time.
EDWARD WAVER  
Forest Products—Production Management
Ed, a native of Glen Ellyn, Illinois, attended summer camp in North Carolina in 1973. During the summer of ’74 he was employed by the W. H. Schenk Lumber Co.; he worked in the yard and mill in Chicago, Illinois for nine weeks and at the dry-kiln in Iron River, Michigan for one week. Ed, a member of the FarmHouse fraternity, Forec Club, and the Forest Products Research Society, enjoys all sports and is an avid collector of knives, keychains, coins, and stamps. After spring graduation Ed plans to “get married, get a job, get rich and see the world.”

DAVID F. HERREN  
Outdoor Recreation—Park Administration
Hunting, fishing, music, camping, hiking, tennis, and basketball are some of Dave’s favorite pastimes. Dave is a member of Alpha Gamma Rho fraternity where he is House intramural chairman, House Greek Involvement Chairman, and House Greek Week coordinator. Among other things Dave has worked on the technical crew for Stars Over Veisha and participated in Varieties 1974. Dave’s summer work experience includes managing the swimming pool, tennis courts, and civic center for Oswegoland park district in his hometown of Oswego, Illinois. After spring graduation Dave would like to work in park administration, possibly managing recreation areas.

DAVE HOFFMAN  
Forest Management—Soils
Sports, camping, fishing, and hunting are some of Dave’s hobbies. Dave, who is from Dubuque, Iowa, has been active in residence hall politics while at Iowa State. During the summer of 1974 he worked on forest inventory in the Black Hills National Forest in South Dakota. Dave plans to enter the working world after graduation this spring.
GARY HUNTER  
Forest Management—Forestry Business  
Gary is from Storm Lake, Iowa and plans to graduate Summer quarter 1975. He has been a member of Forec Club, chairman of the 1974 Wild Game Banquet, Ag Council representative and vice-president, and a member of the Ag College Human Relations Committee. Gary received the “Real Guy” Award from the I.S.U. College of Agriculture in 1974. Gary enjoys swimming, golfing, hunting, and fishing in his spare time. Gary, another member of the 1972 summer camp group in Calumet, Canada, did inventory for the Forest Service in the Black Hills National Forest during the summer of 1974. Gary’s post graduation plans include finding a job with either private industry or the Forest Service.

CHRIS KELSEY  
Forest Management—Outdoor Recreation  
Chris, who attended the 1973 summer camp in North Carolina, is a native of Mt. Prospect, Illinois. He worked in his homestate during the summer of ’74 doing 100 percent surveys for Dutch Elm Disease and Oak Wilt in the Cook County Forest Preserve District. Chris, who has participated in intramurals, enjoys hunting and fishing. He and his wife, Gail, are awaiting his spring graduation, after which he plans to enter the working world.

GARY KRATZ  
Forest Management—Managerial Science  
Gary, a native of Ridgeway, Iowa, attended the 1973 summer camp in North Carolina. He spent the remainder of that summer and the summer of 1972 surveying in northeast Iowa. In 1974, he worked with the Forest Service in the Black Hills doing continuous forest inventory and fire-fighting. At ISU Gary has served as corresponding secretary and vice-president of Beta Sigma Psi fraternity. He has worked on the Marathon Dance for Muscular Dystrophy for three years and is a member of SAF and Forec Club. Gary’s hobbies include raquetball, basketball, downhill and water skiing, dirt-biking, swimming, hockey and “women!”
GREG D. MARTINSON
Forest Products—Industrial Engineering
Greg's college activities have included part-time jobs ranging from waterbed sales to turkey farming. Xi Sigma Pi and the Forest Products Research Society are two of the organizations to which he belongs. Greg, who is from West Long Branch, New Jersey, attended summer camp in Harrington, Quebec, in 1971. During the summer of 1974 he was employed by Weyerhaeuser in Albert Lea, Minnesota as a management intern working on industrial engineering problems in a laminating plant. Following graduation in Fall 1974 Greg had plans to find a position in industry.

KIRK MATHIS
Forest Management—Outdoor Recreation
Hunting, water skiing, camping, and playing harmonica are some of Kirk's hobbies. Kirk, who is a native of Shenandoah, Iowa, is another veteran of the 1972 summer camp in Calumet, Quebec. During the summer of '74 he was employed by the Iowa Conservation Commission doing maintenance work in Ledges State Park. Kirk and his wife, Karen, are looking forward to his graduation in Fall 1975. Although his post graduation plans are uncertain, he would like to find a position with the Iowa Conservation Commission.

BRIAN LONG
Forest Management—Forest Products
Brian and his wife Shirley are looking forward to his graduation in May. Hailing from Mason City, Brian attended summer camp in Quebec, Canada in 1972. In the summer of 1973, Brian worked as crew boss of a forest inventory crew in the Black Hills, South Dakota. Last summer, he wrote computer programs to edit aerial photos with the Intermountain Range and Experiment Station in Ogden, Utah. Brian has been active in the Forec Club intramural basketball and softball teams, and he enjoys hunting and fishing in his spare time.
APRIL MCDONALD
Outdoor Recreation—Environmental Interpretation
April, who is from Des Moines, Iowa, received the George B. Hartman Travel Award in 1972. She has been an active member of Forec Club serving as treasurer in ’72-’73, historian in ’73-’74, business manager of the AMES FORESTER in ’73 and editor of this year’s edition. Xi Sigma Pi and Cross Country Ski Club are two of the other organizations April belongs to. Her work experience includes being a park rangerette at Hickory Grove Park in Story County, Iowa during the summer of ’72, and seasonal naturalist at Utah’s Flaming Gorge National Recreation Area during the summers of ’73 and ’74. April was also employed by the Forest Service as an intern at Sylvania Visitor Center in Ottawa National Forest in Michigan during the spring of ’74. As an intern she gained experience in developing interpretive programs and aided with environmental education programs. Following graduation this spring April would like to work as a naturalist for a private nature center or a government agency. Hiking, camping, cross country skiing, and reading are some of April’s hobbies.

GREGORY McGRANAHAN
Forest Management—Soils
Greg is from Sanborn, Iowa and will be graduating in Fall 1975. Greg, another member of the 1972 summer camp group, was employed by the North Carolina Forest Service in fire control and suppression during the summer of ’73. The following summer he worked on the Del Rosa Hot Shots fire fighting crew in California’s San Bernadino National Forest. Greg, who enjoys hockey, hunting, and shooting, is a member of Forec Club, Trap and Skeet Club and Xi Sigma Pi. He plans to enter the working world after graduation.

MICHAEL T. MILLER
Forest Management
Mike and his wife, Elaine, are looking forward to his graduation this summer. Hailing from Waterloo, Iowa, Mike attended summer camp in 1965 at Missoula, Montana. Mike worked on the Nez Perce National Forest in Idaho during the summer of 1965, and on the Winema National Forest in Oregon during the summers of 1966 and 1967. From 1967 to 1973, Mike served as an electronics technician on a submarine with the U.S. Navy. Mike enjoys photography, golf and canoeing and has taken many photos for the 1975 AMES FORESTER. Mike plans to attend graduate school in biometry at ISU after his graduation.
JAMES PORTERFIELD
Forest Management—Forest Recreation
Jim, a native of Alexander, Iowa, attended summer camp in Calumet, Quebec in 1972. He was employed by the Soil Conservation Service in Greenfield, Iowa during the summer of 1974. As a student trainee he learned the design and layout of conservation practices, particularly farm ponds. Along with being active in intramurals, he has been House treasurer and is a member of the Forec Club, the R.C.A. Camera Club and the University Lutheran Church's folk group Hexadus. Jim, who has taken many pictures for the AMES FORESTER, lists photography as his favorite hobby.

RANDY RUSSELL
Forest Management—Forest Soils
Hunting, bike riding, basketball, and handball are some of Randy's favorite pastimes. Another veteran of the 1972 summer camp, he was employed in the San Juan National Forest in Colorado in the summers of '73 and '74. While working for the Forest Service he gained experience in marking timber, traversing, cruising, and stage II surveying. After graduating in the spring, Randy, a native of Traer, Iowa, hopes to find employment with either the Forest Service or the Soil Conservation Service.

PAT RUTZ
Outdoor Recreation—Sociology and Public Administration
Pat is from Greene, Iowa and will be graduating in Fall 1975. Her plans after graduation are to work in a city or county parks and recreation department. In the past she worked as a lifeguard and swimming instructor in Greene and during the summer of '74 was the pool manager and coordinator of the recreation programs. Pat also has worked as a counselor at the Trees for Tomorrow Camp in Eagle River, Wisconsin. She is a member of the Student-Faculty Relations Committee, and a student member of the Revising the Advisor Program. "Having fun, doing things outdoors (backpacking, star gazing, etc.), and working with people" are among the things Pat enjoys.
JORDAN RYDER  
Forest Management—Business  
Jordy is from Dubuque and will be graduating this spring. He attended summer camp in 1972 in Calumet, Quebec. During the summer of '74 he was employed by the Clearwater Potlatch Timber Protective Association in Idaho. His duties included pre-commercial thinning and fire fighting. Jordan served as Merrill House activities Chairman during spring quarter 1973. Motorcycles, camping, hiking, playing guitar, and drinking are some of Jordy's interests. Getting a job or going to graduate school are on his list of possibilities for after graduation.

CRAIG STANGE  
Forest Management—Extension  
Craig's pastimes include "farm work, reading, meeting and understanding people beyond the 'Hi, how are you?' stage, dates, camping, canoeing, and water skiing." He is an active member of the University Lutheran Congregation having served as supplies chairman, publicity chairman, and president. He was also editor of the Alpha Gamma Rho Eta Crescent, a publication of his fraternity. During the summer of '72, Craig, a native of Muscatine, Iowa, attended summer camp in Canada and then worked as a counselor at the Trees for Tomorrow Camp in Eagle River, Wisconsin. He was employed by Weyerhaeuser as a summer intern in Plymouth, North Carolina during the summers of '73 and '74. Following graduation this spring Craig would like to "settle in Iowa as an extension, district, or consulting forester in close proximity to Iowa agriculture."

DAVID STINEMAN  
Forest Products—Industrial Engineering  
Dave, another member of the 1972 summer camp group, hails from Laurel, Iowa. He was employed by Weyerhaeuser Co., in Hancock, Vermont, during the summer of 1973. He returned to work in Hancock during the summer of '74 accompanied by his wife Joanie. While employed by Weyerhaeuser Dave gained experience in quality control, safety supervision, and line supervision. After graduation in the spring Dave plans to work in industrial production research or quality control. Forec Club, Xi Sigma Pi, and Sigma Chi fraternity are some of the organizations Dave belongs to. In his spare time he enjoys bicycling, fishing, hunting, woodworking, hiking, and handball.
PAUL W. WRIGHT, JR.
Forestry—Pre-Med
Paul, a native of Marion, Iowa, is graduating this spring. He attended summer camp in Cullowhee, North Carolina in 1973. Hiking and swimming are his favorite pastimes. Paul's post graduation plans include either finding a job or attending graduate school.
Of Hoes and Herbicides
by Michael T. Miller

Iowa State University's forestry department hired me as a greenhouse assistant for the summer; this position provided an opportunity for becoming familiar with experimental operations in the field and activities carried out within the greenhouse.

Greenhouse work consisted of spraying insecticide, fertilizing and watering plants, propagation of poplar clones and general upkeep of the greenhouse. During the course of the summer I was able to help construct a mist system, expanding the facilities available for plant propagation.

Propagation was done solely by taking fresh cuttings from stock plants; each cutting was stuck into a peat ball and placed under the mist system where they were kept moist while root systems developed. The plants propagated were used for experiments here, replacing stock plants and for sending to Wisconsin for experimental use.

Field studies needed to be set up in conjunction with experimental work in intensive fiber production from poplar clones. My work included helping lay out two experimental plots, planting the trees to be observed and setting up an irrigation system (pipes and sprinklers) which could be easily shifted from one plot to the other. I also did my best to beat back the weed population with a hoe; this left me with a high regard for herbicide!

Spending A Summer
In the Black Hills
by Gary Hunter

I spent the summer of '74 in the Black Hills National Forest working for the Forest Service. Other ISU students who were also working on inventory for the Forest Service were Carl Joy, Dave Holmann and Gary Kratz, although rumors had it that they didn't work very hard.

Everyone worked in two-man crews in which the crew leader had already graduated from college. My partner was a product of the University of Minnesota.

Our job consisted of using aerial photos with pin pricks on them, which designated a certain point on the ground. After finding this point, which sometimes took most of the day, we then laid out a one acre sample plot consisting of ten points.

At each point we used a twenty basal area factor to determine the trees that were in and calculated such items as dbh, height, surface defect, damage, slope, aspect, crown class, age and any diseases in the area.

Some of us also got in some fire fighting experience when we were able to assist at a fire on Woodpecker Ridge just south of Mount Rushmore. All of South Dakota was grateful when the fire was put out before it destroyed the granite faces.

I lived about twenty miles outside of Custer, South Dakota, at Teepee Work Center. Four of us lived in a cabin provided to us free of charge by the Forest Service, and looking at the facilities I think the price was just about right.

Generally we worked a forty hour week. This left our weekend open for activities such as swimming, fishing, sightseeing or just relaxing. With a total of fourteen guys working on inventory, there was something always going on during the weekends.

I had a great time this summer meeting new friends and having new experiences in the Black Hills. I think the three months of actual experience in the field greatly enhances a person's education in Forestry.

Summer On the Chippewa
by Gary Beyer

The past summer I worked as a "teamleader" of the Youth Conservation Corps on the Chippewa National Forest in northern Minnesota. The Youth Conservation Corps (YCC) was founded in 1971 by the United States Forest Service to educate America's youth in our natural resources, and to teach them to cope with hard work and group living.

The term "teamleader" was used to distinguish us from counselors. Our job was to transport the work crews to the project site and provide leadership while working along side the crew members. In camp we organized recreational activities, education programs and some great pillow fights.

The people selected for the program were high school students, fifteen to eighteen years old from schools throughout Minnesota. Ideally these people were attuned to natural resources, but it soon became apparent that this was not the case. The wide diversity of backgrounds and personalities made our
job difficult at times, but it also provided us with a valuable experience.

The fifty members of the camp were split into eight member work crews, each headed by a teamleader. The teamleaders took a different crew each week to give them a chance to work with all of the people.

Work crews were conducted in each of the five districts of the Chippewa National Forest, with one crew working out of a tent camp in the Marsell District. The projects included the first basswood curves for Minnesota (which I worked three weeks on), camp site rehabilitation, red and white pine pruning, plantation release, nature trail construction, wildlife openings, woodduck population studies, and erosion control. Also we conducted the first controlled burn with a YCC crew. The Youth Conservation Corps members were not allowed to use power tools, so our work was accomplished with hand tools, sore backs and plenty of sweat.

The Forest Service lacks the manpower to give adequate attention to these tasks, and the YCC plays an important role in their work force each year.

The summer was not all work. The camp had tremendous facilities and we made the most out of the gymnasium, paddle boats, canoes, swimming, bass fishing, softball tournament, and nightly campfire bull sessions.

The past summer I learned how the Forest Service operated, but most important I learned how essential the education of our youth to manage our natural resources is. These people will be our future landowners, businessmen, politicians, recreationalists, and they will control the condition of our country in the future.

Good Ole’ Story County
by John Stuart

This summer I had the good fortune of being employed by the Story County Conservation Board at McFarland Park northeast of Ames. I say good fortune because Story County has one of the goingest conservation boards in the state and nation. My duties included everything from trash collecting to enforcing park rules and regulations, from trail building to being a P.R. man.

Two experiences in particular will stay with me for a long time. The first was my involvement with twenty-three fired up “can do” Youth Conservation Corps (YCC) kids ranging from fifteen to eighteen years of age. When I was told that I would be working with high school kids building the initial trail system in McFarland Park, I nearly fainted. How does anyone get any work out of twenty-three high school kids (boys & girls)?

I soon found out that the real question was how does anyone keep up with twenty-three high school kids! Those young people didn’t know what the word impossible meant. To any rational twenty-seven year old student the idea of moving four, thirty foot telephone poles ten feet without the aid of some sort of heavy equipment would be absurd, and the mechanics mind bending. How, then, was I to move them one-hundred yards down a steep hill covered with trees, across a creek, and put them into position to form a bridge? Answer: Turn twenty-three YCC kids loose and watch them pick up the poles and carry them like an ant carrying crumbs. That’s what I did, and that’s what they did. Because of determination like that, McFarland Park has the beginnings of a trail system and twenty-three Ames area youths can say with pride that they made it happen.

The second memorable experience is one that all ISU students and Ames residents can take pride in being a part of. As part of my duties, I had to patrol the three other parks or accesses owned by the county along the Skunk River, namely Sleepy Hollow Rest Area, Anderson “H” Tree Canoe Access and everybody’s favorite—Soper’s Mill Access. It’s been said that you’re not a real Iowa State student until you’ve been to a Soper’s Mill Kegger. This fall I found out just how true that statement was. Picture, if you will, a balmy early September night, a big full moon, crickets chirping, and you’re out on your routine Saturday night patrol headed for Soper’s Mill thinking you should have brought along the fishing pole so you could catch some of those elusive smallmouth bass (what else would you expect a “good” park ranger to be thinking of?). While still thinking of those bass, you pull into the Mill only to be greeted with a sight you cannot comprehend: bumper to bumper cars and people. What has happened to Soper’s Mill? All summer long you haven’t seen ten people there, and now the entire world is there! (beer
drinking world, that is.) Finally reality slaps you in the face (for school has officially started). You make the rounds checking to make sure the fires are in the fire rings and everyone is behaving himself, all 700-800 of them. You make certain that everyone has a trash can or bag, hoping against hope that one half of them will use them, but dreading Sunday morning when you will have to roll out and begin the big cleanup.

Sunday comes all too soon, and you unwillingly head for the Mill wondering if one truck will be enough to haul the debris away. You get there and drive around, but, where is all the trash? You walk through the gooseberry bush to see if you’re awake. Ouch! Yep you’re awake, and it is Sunday. Maybe you were sleeping Saturday and just dreamed that all those people were there. No, three fires are still warm.

The answer to the mystery? Either the users have picked up after themselves, or it could be a freak occurrence. Why, you ask? Come to Story County park and find out.

By now you are thinking that this guy is awfully windy, and that his summer job didn’t sound like much of a job. Well, you’re right on both counts. I am windy, and it wasn’t much of a job for me because when you enjoy your work, it isn’t much of a job at all!

Headquarters, Idaho
by Jordan Ryder

I spent the past summer working for Clearwater Potlatch Timber Protective Association out of Headquarters, Idaho. Headquarters is located in the northern part of the state (not in potato country).

My first four days were spent in Elk River, Idaho attending fire school. Here we watched movies, heard lectures, and listened to jokes somebody had pulled out of their shoes. We also had to dig a fire line, smoke-chase (follow an airplane to a fire), and put out and mop-up a real fire. The nights were spent shooting pool and getting drunk with the head honchos down at Tom’s bar in Elk River.

After fire school, I was sent to Headquarters, where for the first two weeks we piled slash. Then I was assigned to the thinning crew. We had a precommercial thinning contract with the state which included about 60 acres. Thinning is very strenuous work. We were thinning to a 15 foot spacing. The forests consisted of Douglas fir, grand fir, white pine, and some lodgepole pine.

Our main job though was fire protection; the thinning and slash piling were jobs given to us to keep us busy. Over all the summer was really good forestry experience.

The Girl in the Picture
by Russ Hatz

“Hey, I’ll trade you my pork chop for a dry pair of socks.”

“Aren’t you crazy? This is my last dry pair, and besides I’d rather eat my wet socks than one of Pete’s pork chops!”

Pete was the boss on the timber crew I worked on this summer. Actually his pork chops weren’t all that bad but we did use his gravy to resole our shoes. Fantastic glue.

Once again I worked out of the Union Ranger District of the Wallowa—Whitman National Forest in eastern Oregon. This particular timber crew was made up of six guys. Two Forest Service regulars, three college students, and one high school student. Our main duties included marking timber, cruising, and boundary layouts. Since the nearest tree is a hour and a half drive from the district office, during the week the six of us stayed in two 22 foot trailers complete with electricity, gas stove and refrigeration, and for having to put up with these outrageous hardships we received $8 per day per diam.

Last year while really camping all summer on trail crew we didn’t receive one drop of rain. This summer, however, was a different story, raining at least once a week for at least three days at a time. This rather humid condition, rare for eastern Oregon, resulted in the district having only seven small fires during the three months I was there. I did manage to get on three of them which does boost the pay check a bit.

Oh! The girl in the picture? One of the wilderness guards. She stayed in the bunkhouse with all the other guys on days off, which does boost the “espirit de corps” a bit.
Summer Starts at 20° Below  
by April McDonald

My summer started last March when I volunteered as an intern with the Forest Service on the Ottawa National Forest. But it wasn’t summer when I arrived in Watersmeet, Michigan along with temperatures of 20 degrees below zero and a foot of new snow.

In order to gain some additonal work experience, I spent two months working with Visitor Information Services (VIS) and the environmental education program at the Sylvania Visitor Center in Watersmeet. The work was interesting and varied. Projects included illustrating a wildflower booklet, developing slide programs and a guided trail, and working with high school students and teachers in an environmental education program. I also participated as a photographer on the prescribed burn, canoed through Sylvania Recreation Area with the forest hydrologist, transplanted beaver with the state conservation officer, and took my first (and hopefully last) ride in a fire patrol plane.

The blizzard in early April with two more feet of snow was our last major snowfall and the ice finally went out in early May. Winter is an exceptionally beautiful time in Michigan’s Upper Penninsula. Snowshoeing in the northwoods surrounded by balsam fir and birches jeweled with boar-frost with only the chicadees for company is something that everyone should experience at least once. But by the end of May, I was ready for warmer temperatures and anxious to return to my summer job.

After a three day trip through Arches National Park in southern Utah, I arrived in Dutch John, Utah where I worked as a seasonal naturalist on the Ashley National Forest at Falming Gorge National Recreation Area. One week after I arrived, I awoke to three inches of fresh snow, and by the time it melted I had convinced myself that I wasn’t dreaming that I was back in Watersmeet.

Last summer my roommate and I lived in the Red Canyon area surrounded by ponderosa pine and wildflowers. It was not unusual to see mule deer near the trailer and we were often serenaded by a family of whistling marmots on quiet afternoons. Every evening after dark some of our wildlife friends made our home their home, and we slept to sounds of tiny chipmunk feet pitter-pattering around the trailer.

My job included answering visitors’ questions, presenting evening slide programs and conducting a nature study on pond ecology which I developed. The nature study was something new for both myself and the recreation area. Twice a week I led a group of visitors in the study of a pond near the visitor center. Groups, ranging from one to 35 visitors of all ages, spent about an hour knee deep in the pond collecting and identifying aquatic insects and animals.

During the summer, I travelled to the Tetons, Yellowstone, and Capitol Reef National Monument, and hiked and camped in the Uinta Mountains on the Ashley. And as you might expect, I found it difficult to return to Iowa.

Colorado Summers  
by Dave Harkema

Looking back on my last two summers of work with the Forest Service, I can see that my time was spent well. Dr. Thomson put it correctly when he said in effect that our younger days are ones in which we are retarded. I guess trying to apply all the things you have learned in school toward your first job is like jumping off of a high diving board for the first time. I was excited, optimistic, pessimistic, fearful and confident all at the same time. In a way, my first summer of work did a good job of wiping out all the stars I had accumulated in school.

Well, I will get off of the philosophy kick now and tell you about some of the experiences of my summer work. I worked as a Forestry Aid and then as a Forestry Technician for the Pine District of the San Juan National Forest based out of Bayfield, Colorado. I had the pleasure of working with a fellow Iowa Stater, Kevin Rioidan, for both summers. Kevin and I worked on inventory, tree marking, regeneration surveys, slash piling, controlled burns, area surveys and all kinds of office work.

Don Bolinger and Bob Clausen were both Iowa State graduates working on the forest. Don is on range management of the Pine District, and Bob is one of the “big wheels” of the forest. I think he was in charge of the timber for the forest.

Southwest Colorado is as beautiful as it is enjoyable to work in. Many weekends were spent backpacking, fishing or being a “terrorist” in Durango.
Some of our better weekends were spent at Mesa Verde National Park and Emerald Lake. Besides this beautiful country, the people made the work enjoyable. People in the West move at a slower pace and still get much done. My supervisor, Roger Corner, and other people Kevin and I worked with: Dave Crawford, Rudy Candalaria, Bill Tomlison, Bill Galegos, Don Bolinger, Dan Carr and Kurt Van Hazel, were all great to be with.

Forest fires always seem exciting, so I will tell of one which began with a report from Charlie Patrol (airplane reconnaissance) at 4:00 p.m. This fire was located in the primitive area in tall timber and quite a distance from the nearest road. Five people and I were dispatched and we began walking at 5:00 p.m. Roger was with us and we walked until 2:00 a.m. One of the guys got lost with all of the headlights in his backpack except the one I had in by back pocket. So, five people were trying to see with one light. We finally found this joker who had gotten lost, and we quit for the night. All of this walking around was due to the simple fact that there were so many ridges and shifting winds, and, well, our supervisor was with us. Thus I need not explain further. We finally found the spot soon after daybreak. It was about one acre in size and cost the Forest Service $1,000-$1,500 to fight. Helicopters and horses were used to bring in replacements that evening.

Working in Colorado was rewarding. I know that neither Kevin or I would trade it for anything.

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**Xi Sigma Pi**

Xi Sigma Pi is the natural resources honorary at Iowa State University. It exists to honor the students of Forestry and Outdoor Recreation who excel scholastically and have personalities that tend to make them successful in natural resource fields. Among the goals of the chapter are the development of a professional spirit among its membership and the encouragement of active communication between students and professionals in natural resource fields.

In an effort to make Xi Sigma Pi more active at Iowa State University, the chapter sponsored a three part seminar series on Natural Resource Management. Dr. Peter Dress of the University of Georgia and Dr. Gerald Stairs of the University of Arizona spoke to the topic of “Forest Resource Management in a Contemporary Setting,” and Dr. Richard Hilliker spoke on “The Value of a Natural Resource Education in the Wider Business World.”

The current membership of the Alpha Gamma Chapter of Xi Sigma Pi stands at 36, with 11 undergraduates, 13 graduate students, and 12 faculty members.
Forestry and Outdoor Recreation Club

JON M. GEHRING
President

The Forestry and Outdoor Recreation Club has experienced many successful events the past year. The Club's "bank book" was boosted into the black after a very successful Christmas tree sale and by the "penny pinching" 1974 Ames Forester staff. This allowed the Club to purchase some very much needed Conclave equipment; a two-man crosscut saw, a chopping axe, and metal foot guards.

The Veishea committee added a new attraction in the Forestry Department display. Along with the room display and seedling sale, the committee had an outdoor demonstration of crosscut sawing, log chopping and birling by Lake LaVerne. This has replaced the Spring Forester's Day due to high costs and a busy Spring quarter schedule.

The year ended with a Senior Farewell Party, and I'd like to thank those seven people that showed up. Everyone else must have had something else going on that night.

The new school year has brought many new faces into the Forec Club. The number of people attending the first meeting was well over 80 and there has usually been a good turnout for all the Club meetings.

The annual Freshman Welcome was held at Sopers Mill with a sizeable number in attendance. The traditional hot dogs, potato chips and beverage were served and all had an enjoyable evening.

Fall Forester's Day was another successful event which was held at the Holst Tract. The committee cleaned up the area considerably to make the day quite pleasant. This year's Forester's Day also marked the return of the pig roast which was absent for one year due to high market prices.

The Midwestern Foresters Conclave was held at Ann Arbor, Michigan and 11 Iowa Staters competed. The highlight of the weekend was getting rid of the bear skin, as was meeting the people from the various schools.

Seniors and Juniors

Christmas Tree Sales recorded another excellent sale this past winter. True dedication and many cold bodies made it possible. The age old hassle of getting transportation for the trees was solved with much cooperation from the Forestry Department.

The major change in the Club administration has been the loss of Dietmar Rose as Club advisor. Rick Hall has graciously taken over as the Club's new advisor and has been doing an excellent job.

The annual Ski Party was again held this year after last year's cancelation. The traditional menu of chili, cheese, pop and beer was available for the hungry, wet skiers. All who attended had an excellent time and have hopes of another ski party next year.

Participation by many of the Club members has been fantastic over the past year. I'm sure without their help the continued success of the Forec Club could not be possible.

It has been a great honor and pleasure to serve as President of the Forec Club and to have been a member for the last four years.

Oh no you don't! This is my tree!

Freshmen and Sophomores

Hee, Hee, Hee, Who is the fool that bought this bare boughed beauty?

Trees were selling at a blinding speed.

Humm, I'm worth only $4.25?!

Sorry, there are no rebates on Christmas trees.
Chop, chop, chop

Veishea

You want to see my wooden duck?

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No Russ, you move it, I'll guide!

Placings

Two Man Buck
1. Gettle-Hatz
2. Gehring-Miller

Dizzy Izzy
1. Dave Harkema
2. Russ Hatz

Nail Pound
1. April McDonald
2. Joanie Stineman

Egg Toss
1. Larry Moore
2. Rick Taylor

Water Boil
1. Mike & Elaine Miller
2. Rick Taylor & Patti Downey

Overall
1. Rich Gettle
2. Russ Hatz
3. Larry Bajuk
4. Mile Miller

Wood Technology
1. Larry Bajuk
2. Russ Hatz

Dendrology
1. Larry Bajuk
2. Rich Gettle

Tobacco Spit
1. Mark Rediger
2. Mark Chicoine

Log Throw
1. Dave Stineman
2. Mike Miller

Pulp Toss
1. Moore-Bajuk
2. Gettle-Hatz

Chain Throw
1. Mark Rediger
2. Jim Jaminet

One Man Buck
1. John Jennett
2. Rich Gettle

Tree Felling
1. John Jennett
2. Mark Chicoine

Log Chopping
1. John Stuart
2. Mike Vorwerk
   Mark Chicoine

Match Split
1. Rick Taylor
2. Larry Moore

Log Rolling
1. Gettle-Hatz
2. Taylor-Walton

Traverse
1. Tim Trachsel
2. Jon Gehring

Chain Sawing
1. Dave Harkema
   Rich Gettle
2. Jordan Ryder
   Jon Gehring


Thanksgiving Turkey

...five, six, pick up de sticks...

Uhhh, Rick!

Ecologically speaking this is a waste of nails.
Ski Party

The hunchback of Ted's Ski Hill—Rick Hall.

Shovel it in!

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Watch me pull a rabbit out of the sack!
Whee!!

Who's got my pickle?
The 23rd Annual Midwestern Forester's Conclave was hosted by the University of Michigan at their Fresh Air camp. Iowa State was well represented in competition with someone in almost every event. Eleven students attended: Carla Derby, Pat Rutz, April McDonald, Greg McGranahan, John Jennett, Rich Gettle, Jon Gehring, Tim Trachsel, Larry Bajuk, Jordy Ryder, and Dave Harkema.

This year we barely achieved our goal by getting rid of the greasy bearskin. Jon Gehring's fourth place finish in the tobacco spit put us on the scoreboard, but it wasn't until the last event called "Special Event" that we finally got rid of the "skin." The Special Event was a combination of canoe racing, tree felling, and water boiling. Jordy (up front) Ryder and Dave Harkema paddled the canoe, John Jennett dropped the timber, and Jon Gehring and Larry Bajuk finally got the water to boil. For the Special Event we managed a second place. Rich Gettle has probably never worked as hard in his life as when he entered the log chopping contest, a-aah, the axe wasn't sharp yet.

The trip was as enjoyable as the actual competition. Few people know what kind of faces Pat, Carla, and April can muster up while travelling in Greg's and Tim's cars.

Missouri University finished first with Iowa State a close seventh.
C'mon Granny, pull!

Conclave crew at Warren Dunes, Michigan.

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Davenport, Iowa
Holst State Forest
by LARRY MOORE and LARRY BAJUK

For nearly 30 years, Iowa State forestry students have had a chance to practice multiple-use forestry on a natural forest in their own back yard. But, for the last 20 years, very little advantage has been taken of this opportunity.

The Holst State Forest has been under Forestry Club administration since the early 1940’s. There was considerable club activity on the forest through the 40’s and early 50’s, but interest slowly died out. Activity in the 60’s was sporadic at best. Today, virtually the only club activity on the forest is Fall Forester’s Day.

The Ames Foresters of the 1950’s report many projects on the forest which were planned, and some which were started. Logging was expected to start in 1950; test plots for wildlife were set up; erosion control plantings were planned, among many others.

These projects evidently were not carried out, as no records (outside of the plans reported in the Forester) can be found about most of them.

The only information available about activities in the late 50’s are the stories in the Forester. These stories indicate that plans were becoming less concrete and activity was slowing down through these years. In 1961, the Forester stopped publishing stories on the Holst Tract.

Jerry Grebasch, Iowa Conservation Commission Forester for the state nursery in Ames, says that through the years there have been a lot of ‘‘grandiose ideas, but they have been mostly lots of talk.’’ Grebasch said that the only real improvements in recent years have been the improvement of the road going into the forest (done by the Conservation Commission) and the building of a fireplace in the forest’s supply cabin by ISU students.

There are probably many reasons why interest in the Holst Tract has died. Dr. George Thomson, an Iowa State undergraduate in the 40’s, said that the club used the forest more for social events in those days. ‘‘Students didn’t have the transportation to go home on weekends. Working at the Holst Tract was something to do on Saturdays which would get you away from campus for awhile.’’

The Forestry Department turned the administration of the Holst Forest over to the Forestry Club in 1947. This did several things which made active management more difficult. Management was now the responsibility of volunteers in a loosely knit organization with a fast turnover in membership.

Keeping accurate, up-to-date records became more difficult. Much research which was done was never compiled, some of what was compiled was incomplete, and a lot of studies and reports have been lost through the years.

Dr. Thomson says that bad record keeping is, “bad management, but is fairly common.” He said that the Holst Forest has been cruised numerous times, but that the results of most of these cruises are no longer around. “Most students find cruising more fun than writing the report. Someone always says, ‘I’ll take it home and work it up this weekend,’ and then it’s lost.”

Thomson said that one student took his cruise data with him to his summer job to write up the report. The student’s cabin caught fire and burned down during the summer, and all his data burned with it.

In addition, many cruise reports which were written up are of little value because of incompleteness, omission of raw data and even failure to date the inventory.

Within an undergraduate club, there is a relatively fast turnover of active members. Much of the time, a project is carried out by only a few students. If these students graduate without leaving records or getting other people interested in the project, activity stops.

Another problem with the Holst Forest is that of joint responsibility for its management. The forest was originally ceded to the State Conservation Commission in 1939 by the late Mr. B. P. Holst, Sr., a prominent Boone businessman. In 1940, the Iowa State College Forestry Department accepted the responsibility of management as a demonstrational and experimental area.

The land is still owned by the Conservation Commission and Grebasch says that his joint responsibility has been a hindrance to the management and improvement of the forest. The University has the responsibility of managing the forest and Grebasch says that he has no records on the land from the date of acquisition.

Despite these problems, the Holst Tract is still being used. Dr. Rick Hall is using the forest for classwork in mensuration and silviculture. Hall has established a quarter acre permanent test plot in the forest’s red pine plantation for ongoing observations in stand dynamics. Hall said that he also has a number of red pines marked for research on hybrid crosses. He is also planning a planting and thinning exercise for silviculture classes in the spring.

A series of CFI (continuous forest inventory) plots were established in the hardwood stands by Dr. Larry Promnitz’s stand dynamics class in November 1974. Promnitz said that a new series of plots needs to be established because some trees in the original plots were cut down for stem analysis.

In the last few years, Forestry-Outdoor Recreation Club has undertaken projects to improve Holst Tract. A sign was installed in Spring 1974 and the gate in Fall 1974. Chairmen of the Holst Tract Committee, Larry Bajuk and Larry Moore, have been standardizing maps, copying aerial photos, and compiling a history of the area to find out what has been done in the past so that a comprehensive management plan can be initiated.
A reminder of the past... yet another unknown, unmarked stake.

One of the “nice” red pine plantations, next to the shed. BA = 160 ft. per acre, too high for this site.

While student interest ranges from very active to apathetic, the Holst Tract still exists. And while the wheels of planning are beginning to roll again, we won’t jump to conclusions. If anything is accomplished, we’ll be sure to document it all in the next Ames Forester...
A (not so) typical hardwood stand. Remember, over 60% of Holst Tract has greater than 50% slope.

A recent addition; a gate closing off the access road to the shed (Fall '74).

A recent addition; a gate closing off the access road to the shed (Fall '74).

Entrance sign re-erected in spring of '74. Will we continue to manage the Holst Tract in the future?

Shed still standing after many waves of vandalism. Recently, gate blocking access road has helped keep area clean.
During the winter of 1973-74 with the energy crunch being felt by all, the forestry department sought a location for camp nearer to Ames than those previously selected by the department. After much searching and negotiating, they selected the University of Wisconsin's Civil Engineering camp near Cable, Wisconsin as the site of ISU's 1974 forestry summer camp. Located in the Chequamegon National Forest, it had originally been a CCC camp but was eventually purchased and improved by the University of Wisconsin for their engineers, although it had remained idle for a few years prior to ISU's arrival.

Upon reaching the camp, the 43 Iowa State students in attendance found a very pleasant setting: several metal barracks, maintenance buildings and dining hall surrounding a "central campus" type lawn, all overlooking peaceful Taylor Lake which abounded with grandaddy bass and monstrous muskies. The forests of the area were diverse, dominated by the northern hardwood and aspen-paper birch types, with red and jack pine, spruce, fir and swamp conifers also present.

Dr. George Thomson, the camp director, was joined on the staff by Dr. Fred Hopkins, Ole Helgerson, and last but by no means least, Dorothy, the camp cook.

The courses of study at camp included forest ecology, forest resource measurements, wood utilization and multiple use operations. In forest ecology, taught by Mr. Helgerson, students became acquainted with basic concepts of forest soils, dendrology, forest biology and silviculture. This course took the group to Rhinelander, Wisconsin to visit the genetics research lab of the U.S. Forest Service. While enroute students toured stands owned by Owens-Illinois and the Forest Service to learn first hand some of the hows and whys of forest management.

In forest measurements, with Dr. Thomson in charge, students ran head-on into elementary surveying, mapping, photogrammetry, timber cruising and many related topics. Having surveyed and cruised, the campers will always recall fondly those pleasant, carefree summer days when their only worry was to make sure that their field book came out right and to keep a Jacob's staff ready to pommel any giant-sized mosquito who might be trying to chew off an arm or leg.

Field trips in wood utilization, handled by Dr. Hopkins, took the troops on many journeys around Wisconsin and into adjacent states. In Duluth, students observed hardboard production at a Superwood Corporation plant and viewed plywood production in Bessemer, Michigan at the Ironwood Products plant. Students also visited the Flambeau Paper Company in Park Falls, Wisconsin, various logging operations and sawmills around the state,
and the Koppers Preservation plant.

In multiple use operations, the varied field trips led the forester to the Apostle Islands area on Lake Superior where they talked with a Bureau of Indian Affairs official. A National Park Service naturalist told of the Apostle Islands and the creation of a National Lakeshore. Iowa Staters toured surrounding areas of Hayward with Wisconsin Department of Natural Resources official, including a forester, hydrologist, wildlife specialist and a landscape architect. An assistant district ranger of the Forest Service showed students a few of the many problems, accomplishments, and challenges which the organization faces. The group accompanied a National Park Service official to points of interest on the St. Croix River and Nemekogan River as he informed them of land acquisition, development and bureaucratic problems of the federal river system projects and the Park Service. Students also visited with industrial foresters and learned the story behind the development of the plush Mount Telemark area from some of the people involved in its design and creation.

Camp was by no means all work and no play, however. The excellent facilities at Taylor Lake included a tournament pool table and horseshoe court, which often saw Dr. G. W. "Killer" Thomson and son demolish many a foe. Taylor Lake was often enjoyed as the "old swimmin' hole" by students who found a cool dip to be a welcome treat after a long hot day in the woods. A skilled few found success at trout fishing in the many nearby streams, while others enjoyed fishing for most any creature that would grab the bait. With sportsmen like Mike "Curt Gowdy" Merritt and Jim "Virgil Ward" Carter out wetting their lines you know there had to be some big ones being caught.

While frolicking about the woods, the aspiring foresters came to know the surrounding woods well and were fortunate enough to experience sphagnum moss beds and view some of the good looking wildflowers that flourish in the area. Many students got close-up peeks at some of the many critters from large to tiny that make those woods their home.

Another certain highlight of the camp was the softball game played by the ISU team against the Grandview Wisconsin city champions. The "Cyclones" managed to massacre the home team easily, even without the services of a couple of their star players (like Will Fredregill) who so graciously played for Grandview in a sparkling effort to even the odds.

The episodes at camp are of course, far too numerous and funny (you just had to be there!) to write about. There are hundreds of things, like those goofy wood stoves in the cabins, Rodger's bad driving, and the good sounds of Ole's banjo pickin' at night that will be remembered and retold by those involved for many days to come.

So in spite of all the bad things like problems that wouldn't work, boredom, aggravation, sore behinds, rainy days and fish that wouldn't bite; all will remember the good people, the good country, and the unique learning experience they found in the Chequamegon National Forest of Wisconsin.

Bumps on a log

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404/975-3801, CABLE ADDRESS 'BENCO'
And on the count of ten, I'll come lookin' fer ya.

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Hey Babe—you want to boogie?
Tomorrow we'll study the side stroke.

Besides, it's the only kind my mommie lets me chew.

Here, try this minnow. It's got more meat on the bones than that steak did last night.
Unemployment Office

Pack Essay Contest winners are Kieth Moore, first place; Greg Behm, second place; Dave Snell, third place.

Pioneer Lumber Company

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Please save and submit starting now to help next year’s staff.
The Editor